ATTACHED ARE:

1) A transcribed copy of BAA 00-59 as it appeared in the *Commerce Business Daily* (CBD) of September 21, 2000 and

2) the BAA 00-59 Proposer Information Pamphlet.

Due to the possibility of transcription errors, the official CBD announcement takes precedence over this transcription in any disagreement between the two. The transcription is provided for your convenience only.

ADMINISTRATIVE NOTE:
NEW REQUIREMENTS/PROCEDURES

POLYMORPHOUS COMPUTING ARCHITECTURES (PCA), SOL BAA 00-59, DUE: 12/08/00; POC: MR. ROBERT GRAYBILL, DARPA/ITO; FAX: (703) 522-7161

The Defense Advanced Research Projects Agency (DARPA) is soliciting proposals for research on various aspects of polymorphous computing in support of DARPA basic research programs and the Polymorphous Computing Architectures (PCA) program. Polymorphic is defined as having, taking, or passing through many different forms or stages (*i.e.* many + form). The emphasis of the PCA program will be on polymorphous computing architectures and supporting application development environments.

This BAA solicits the first phase of research and development for a new class of computing architectures and processing system that will result in a revolutionary approach to implementing embedded computing systems to support reactive multi-mission, multi-sensor, and in-mission retargetable applications. The PCA program will establish the ability to effectively span a broad dynamic application space by implementing a polymorphic layer between an application program and PCA developed malleable micro-architecture elements. These elements will be implemented via a family of novel malleable micro-architecture processing elements to include compute cores, caches, memory structures, data paths, network interfaces, network fabrics with incremental instructions, operating system (OS), and network protocols. These elements will have the ability to morph to match changing mission and scenario demands. This will enable software implementation and malleable hardware optimization to be pursued in a cooperative constraint sensitive environment instead of in a limiting hardware first and software last paradigm. The resulting embedded computing systems will enable optimization across a broad range of applications and the ability to react to dynamic mission requirements. A set of metrics will support processing system design and optimization to include size, weight, energy, performance, and time (SWEPT).

Research is sought in the following technical areas consistent with phase 1 goals of exploration, simulations, early prototyping, initial design concept development, and experimental evidence collection. The PCA program will be accomplished through development across four critical research areas.

1) ***Polymorphic System Characteristics, Scenarios, Constraint Metrics and Abstraction Test Suites.*** Define critical reactive computing requirements and critical micro-architectural features. This will include the development of a set of measurement metrics supporting processing system design and optimization to include size, weight, energy, performance, and time (SWEPT).

2) ***Polymorphous Computing Research***. a) Explore, develop, prototype reactive polymorphous computing concepts; b) morphware stable interface, granularity, composition, and standardization concepts; c) runtime software and PCA tools; and d) explore, develop, prototype multi-dimensional verification and validation techniques.

3) ***Proof-Of-Concepts Experimental Testbeds.*** Support early concept experimentation through the use of architecture simulations and critical element prototyping testbeds.

4) ***Morphware Stable Interface.*** Definition facilitation, experimentation, and reference platform development/test suites.

5) ***Other*** (Identify).

PROGRAM SCOPE:

Due to the revolutionary and comprehensive nature of this 5-year program, a 24-month phase 1 polymorphous computing architecture research phase is planned followed by a 36-month phase 2 fabrication and proof of concept demonstration. The PCA phase 2 program, not included as part of this BAA, will conclude with proof-of-concept PCA system architectures, tool suites, and validation and demonstration approaches to be demonstrated for selected high value DoD applications. Proposers must address critical research areas 1, 2, and 3 listed above. Area 4, if addressed, should be proposed as a stand alone effort; however, a clear outline of how this activity would be coordinated with the teams addressing areas 1, 2, and 3 is critical.

Phase 1 program efforts will pursue the identification of high value dynamic embedded computing mission characteristics, application functionality, initial polymorphous computing concepts and implementations, and early concept experimentation and prototyping. Proposers must target and quantify revolutionary advances to be accomplished and quantify how these advances critically impact at least two distinct DoD missions. As a result of the critical interplay of technical areas 1,2 and 3, comprehensive integrated teams of researchers from multiple disciplines and backgrounds that propose

complete PCA approaches and responses will receive the highest consideration. It is envisioned that there will be multiple phase 1 research awards. Phase 2 will be pursued via a separate follow-on PCA BAA that will draw on phase 1 results. Proposed research should investigate innovative approaches and techniques that lead to or enable revolutionary advances in the state-of-the-art. Proposals are not limited to the specific strategies listed above and alternative visions advancing the concepts of polymorphous computing will be considered. However, proposals should be for research that substantially contributes towards the development and advancement of polymorphous computing.

PROGRAM MANAGEMENT:

Responses that develop teams incorporating academic, defense industry, and commercial industry participants for more complete solutions are strongly encouraged. The constitution of PCA development teams needs to incorporate the research and development areas identified above as critical to the PCA program in order to provide a complete and viable DoD as well as commercial industry solution set. The ultimate long-term transition plan is to both leverage industry developments and capabilities while incorporating PCA developments within a set of commercial products assessable for DoD applications. Cost sharing is highly encouraged in all proposed research areas. While teaming is strongly encouraged it is not one of the evaluation criteria.

Research should result in prototype hardware and/or software demonstrating integrated concepts and approaches. Specifically excluded is research that primarily results in evolutionary improvement to the existing state of practice or focuses on a specific system or solution. Integrated solution sets embodying significant technological advances are strongly encouraged over narrowly defined research endeavors. Proposals may involve other research groups or industrial cooperation and cost sharing.

GENERAL INFORMATION:

The Defense Advanced Research Projects Agency/Information Technology Office (DARPA/ITO) requires completion of a **Broad Agency Announcement (BAA) Cover Sheet Submission** for each Proposal, by accessing the URL below:

http://www.dyncorp-is.com/BAA/index.asp?BAAid=00-59

After finalizing the **BAA Cover Sheet Submission**, the proposer must submit the **BAA Confirmation Sheet** that will automatically appear on the web page. Each proposer is responsible for printing the BAA Confirmation Sheet and submitting it attached to the "original" and each designated number of copies. The Confirmation Sheet should be the first page of your Proposal. Failure to comply with these submission procedures may result in the submission not being evaluated.

Detailed information and instructions are outlined within the Proposer Information Pamphlet (PIP).

ABSTRACT FORMAT:

In order to minimize unnecessary effort in proposal preparation and review, proposers are strongly encouraged to submit brief proposal abstracts in advance of full proposals. An original and **4** copies of the proposal abstract <u>and</u> **11** electronic copies (i.e., **11** separate disks) of the abstract (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format on one 3.5-inch floppy disk or one 100 MB Iomega Zip disk). Each disk must be clearly labeled with BAA 00-59, proposer organization, proposal title (short title recommended) and Copy ___ of 11). The proposal abstract (original and designated number of hard and electronic copies) must be submitted to DARPA/ITO, ATTN: BAA 00-59, 3701 N. FairfaxDrive, Arlington, VA 22203-1714, in time to reach DARPA by 4:00 PM (ET) **Friday, October 20, 2000**, to guarantee review. Upon review, DARPA will make a recommendation to offerors either encouraging or discouraging submission of full proposals.

PROPOSAL FORMAT:

Proposers must submit an original and **4** copies of the full proposal <u>and</u> **11** electronic copies (i.e., **11** separate disks) of the full proposal (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format on one 3.5-inch floppy disk or one 100 MB Iomega Zip disk). Each disk must be clearly labeled with BAA 00-59, proposer organization, proposal title (short title recommended) and Copy ___ of 11). The full proposal (original and designated number of hard and electronic copies) must be submitted in time to reach DARPA by 4:00 PM (ET) **Friday, December 8, 2000,** in order to be considered. Proposers must obtain the BAA 00-59 Proposer Information Pamphlet (PIP), which provides further information on the areas of interest, submission, evaluation, funding processes, proposal abstracts, and full proposal formats. This pamphlet may be obtained by fax, electronic mail, mail request to the administrative contact address given below, or at URL address http://www.darpa.mil/ito/Solicitations.html. Proposals not meeting the format described in the pamphlet may not be reviewed. This Commerce Business Daily (CBD) notice, in conjunction with the BAA 00-59 PIP and all references, constitutes the total BAA. No additional information is available, nor will a formal RFP or other solicitation regarding this announcement be issued. Requests for same will be disregarded.

The Government reserves the right to select for award all, some, or none of the proposals received.

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

Evaluation of proposals will be accomplished through a scientific review of each proposal, using the following criteria which are listed in descending order of relative importance:

(1) Overall Scientific and Technical Merit: The overall scientific and technical merit must be clearly identifiable. The technical concept should be clearly defined and developed. Emphasis should be placed on the technical value of the development and experimentation approach.

(2) Innovative Technical Solution to the Problem: Proposed efforts should apply new or existing technology in a new way such as is advantageous to the objectives. The plan on how offeror intends to get developed technology and information to the user community should be considered.

(3) Potential Contribution and Relevance to DARPA Mission: The offeror must clearly address how the proposed effort will meet the goals of the undertaking. The relevance is further indicated by the offeror's understanding of the operating environment of the capability to be developed.

(4) Offeror's Capabilities and Related Experience: The qualifications, capabilities, and demonstrated achievements of the proposed principals and other key personnel for the primary and subcontractor organizations must be clearly shown.

(5) Plans and Capability to Accomplish Technology Transition: The offeror should provide a clear explanation of how the technologies to be developed will be transitioned to capabilities for military forces. Technology transition should be a major consideration in the design of experiments, particularly considering the potential for involving potential transition organizations in the experimentation process.

(6) Cost Realism: The overall estimated cost to accomplish the effort should be clearly shown as well as the substantiation of the costs for the technical complexity described. Evaluation will consider the value to Government of the research and the extent to which the proposed management plan will effectively allocate resources to achieve the capabilities proposed.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a proposal abstract or proposal to this BAA, must be received at one of the administrative addresses below by 4:00 PM (ET) **Friday, December 1, 2000**; e-mail or fax is preferred. DARPA intends to use electronic mail and fax for some of the correspondence regarding BAA 00-59. Proposals and proposal abstracts **MUST NOT** be submitted by fax **or e-mail**; any so sent will be disregarded.

The administrative addresses for this BAA are:

Fax: 703-522-7161 Addressed to: DARPA/ITO, BAA 00-59
Electronic Mail: baa00-59@darpa.mil
Electronic File Retrieval: http://www.darpa.mil/ito/Solicitations.html

Mail to: DARPA/ITO
        ATTN: BAA 00-59
        3701 N. Fairfax Drive
        Arlington, VA 22203-1714

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BAA 00-59 PROPOSER INFORMATION PAMPHLET

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The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will appear first in the *Commerce Business Daily (CBD)*, published by the U.S. Government, Department of Commerce.   The following information is for those wishing to respond to the Broad Agency Announcement.

POLYMORPHOUS COMPUTING ARCHITECTURES (PCA), SOL BAA 00-59, DUE: 12/08/00; POC: MR. ROBERT GRAYBILL, DARPA/ITO; FAX: (703) 522-7161

The Polymorphous Computing Architectures (PCA) program will develop a revolutionary approach to implementing embedded computing systems to support reactive multi-mission, multi-sensor, and in-flight retargetable missions. PCA developments will enable payload adaptation, optimization, and verification to be reduced from years to days to minutes. The PCA program will replace the current hardware first and software last development cycle by moving beyond conventional fixed silicon processing architectures to flexible polymorphous computing systems. Polymorphic is defined as having, taking, or passing through many different forms or stages (*i.e.* many + form).

The emphasis of the PCA program will be on polymorphous computing architectures and application development environments. The PCA program will establish the ability to effectively span a broad dynamic application space by implementing a polymorphic layer between an application program and PCA developed malleable micro-architecture elements. These elements will be implemented via a family of novel malleable micro-architecture processing elements to include compute cores, caches, memory structures, data paths, network interfaces, network fabrics with incremental instructions, operating system (OS), and network protocols. These elements will have the ability to morph to match changing mission and scenario demands. This will enable software implementation and malleable hardware optimization to be pursued in a cooperative constraint sensitive environment instead of in a limiting hardware first and software last paradigm. The resulting embedded computing systems will enable optimization over a diverse range of applications and ability to react to dynamic mission requirements. A set of measurement metrics will support processing system design and optimization to include size, weight, energy, performance, and time (SWEPT). Specific PCA program goals are to allow post-silicon (post tape-out) optimization through the incorporation of polymorphous concepts within the commercial processing research & development (R&D) and fabrication infrastructure; to develop an environment that provides resource allocation, negotiation, and monitoring; to implement verification and validation at multiple system levels; to

develop testbeds and conduct proof-of-concept experiments; to facilitate technology transitions using strategic teaming; and to establish reference scenarios and standards groups creating community standards that enable broad DoD application and commercial support of PCA program developments.

TECHNICAL AREAS of particular interest to this solicitation are the following technical topic areas, consistent with the initial goals of exploring/exploiting technologies during the initial phase of the PCA program:

1) ***Polymorphic System Characteristics, Scenarios, Constraint Metrics, and Abstraction Test Suites.*** Define critical reactive computing requirements and critical micro-architectural features, including mission decomposition and identification, SWEPT based micro-architecture prioritization, and composite harware/software (HW/SW) abstraction test suites.

2) ***Polymorphous Computing Research.***

   a) Explore, develop, prototype reactive polymorphous computing concepts; micro-architecture hardware granularity and SWEPT; hardware models and range of stable abstractions; polymorphous boundaries and degree of malleability; and polymorphous computing, network interface controllers (NIC), routers, and data storage/memory element.

   b) Explore and recommend morphware stable interface, granularity, composition, and standardization concepts; extent of stable interfaces and services; quality of service, representation of application requirements to hardware, representation of hardware resources against application requirements.

   c) Explore and prototype key elements of the run-time software and software development tools; polymorphic constraint based compute models.

   d) Explore, develop, prototype multi-dimensional verification and validation techniques for dynamic reactive missions; polymorphic configuration optimality and correctness; broad composite malleable computing, communication, memory, monitoring, verification, and optimization.

3) ***Proof-Of-Concepts Experimental Testbeds.*** Support early concept experimentation though the use of architecture simulations and critical element prototyping testbeds; to provide experimental data collection, demonstration, concept analysis, and recommendations in support of proposed polymorphous computing design.

4) ***Morphware Stable Interface.*** Facilitate application to implementation environment definition, pursue developmental experimentation, and develop reference implementation test suites.

PROGRAM SCOPE:

To accomplish the development of this revolutionary approach to implementing embedded computing systems to support reactive multi-mission, multi-sensor, and in-flight retargetable missions in concert with defense and commercial industry, DARPA has structured a five year multi-phased program with the technical scope for phase 1 outlined in the topics listed below. The 24 month phase 1 program efforts will pursue the identification of high value dynamic embedded computing mission characteristics and application functionality, initial polymorphous computing concepts and implementations, and early concept experimentation and prototyping. Proposers must target and quantify revolutionary advances to be accomplished and quantify how these advances critically impact at least two distinct DoD missions. The PCA phase 2, 36 month, program, not included as part of this BAA, will conclude with prototype PCA system architectures, tool suites, and validation and demonstration approaches to be demonstrated for selected high value DoD applications.

Proposers are encouraged to consider the leveraging of related DARPA research in embedded software, embedded hardware, very large scale integration (VLSI) photonics, and agent based computing techniques as applicable (such efforts can be examined via the DARPA web site www.darpa.mil). Likewise leveraging emerging innovative technology from commercial industry is also encouraged.

(1) *Polymorphic System Characteristics, Scenarios, Constraints Metrics, and Abstraction Test Suites*. Initial study inter-team working groups will characterize and perform functional decomposition of pivotal reactive, polymorphous system algorithms and computing functions within the context of DoD mission requirements and commercial processing architectures and product elements. Represented application candidates for the new class of missions, platforms and sensors will be proposed. Critical information computing characteristics and driving requirements will be identified. Representative core functional processing capabilities and functionally reactive and polymorphic processing elements will be defined and overall PCA processing architectures will be explored and identified. Computing system architecture simulation and modeling to identify, optimize, and prioritize the key micro-architecture functions using SWEPT constraints will be performed.

(2) Polymorphous Computing Research. The polymorphous computing research teams will evaluate and prioritize high payoff malleable micro-architecture features and implementations that will support a broad spectrum of computing models and support multi-mission, in-mission, and legacy systems applications. A polymorphous computing architecture framework will be proposed, modeled, and evaluated. Stable architecture abstractions and APIs will be developed that provide for resource reconfigurations and allocation. An integrated incremental tool suite to support software development, optimization, monitoring, verification, configuration, and regeneration for runtime and off line use will be explored and key elements prototyped. A hierarchical integrated reactive configuration and behavior monitoring/verification approach where each

component has local knowledge and responsibility will be explored, developed and modeled.

(3) Proof-Of-Concepts Experimental Testbeds. The proof-of-concept testbeds will provide a polymorphous computing research test environment that will support incremental concept, simulation, and prototype developments. The mission characteristics and prioritization results from area 1 will be used to perform hierarchical performance simulations using SWEPT constraints as the measure of success or optimization. The requirements, characteristics, and test suites from area 1 will be used as both input stimulus and output verification. Unique reactive test environment scenarios and situations will be developed to guide and validate potential multi-component monitoring, verification, and closed loop negotiation approaches. A few early prototype demonstrations will be performed to provide early experimental data on candidate polymorphous elements. These early results will also be used to encourage early adoption and implementation of polymorphous computing elements, approaches, and tools.

(4) *Morphware Stable Interface.* The morphware effort will provide a polymorphous computing environment malleable layer that will link application representations and requirements to polymorphous computing micro-architecture components and capabilities. The representation of the polymorphous architecture in terms of hardware micro-architecture elements through stable hardware abstractions independent of application and actual hardware implementation to software requirements is to be developed. The above concepts will be conceived and proposed by each of the individual teams under area 2. The contractor (facilitator) for this area must specifically address the task of coordinating this activity with the PCA community and industry as a whole. Reference implementations, test suites, documentation, and standardization efforts will be required.

Proposed research should investigate innovative approaches and techniques that lead to or enable revolutionary advances in the state-of-the-art. Proposals are not limited to the specific strategies listed above, and alternative visions will be considered. However, proposals should be for research that substantially contributes towards the goals stated. Research should result in prototype hardware and/or software demonstrating integrated concepts and approaches. Specifically excluded is research that primarily results in evolutionary improvement to the existing state of practice or focuses on a specific system or solution. Integrated solution sets embodying significant technological advances are strongly encouraged over narrowly defined research endeavors. Proposals may involve other research groups or industrial cooperation and cost sharing.

SUBMISSION PROCESS:

The Defense Advanced Research Projects Agency/Information Technology Office (DARPA/ITO) requires completion of a **Broad Agency Announcement (BAA) Cover Sheet Submission** for each Proposal, by accessing the URL below:

http://www.dyncorp-is.com/BAA/index.asp?BAAid=00-59

After finalizing the **BAA Cover Sheet Submission**, the proposer must submit the **BAA Confirmation Sheet** that will automatically appear on the web page. Each proposer is responsible for printing the BAA Confirmation Sheet and submitting it attached to the "original" and each designated number of copies. The Confirmation Sheet should be the first page of your Proposal. Failure to comply with these submission procedures may result in the submission not being evaluated.

Revised!

Proposers are strongly encouraged to submit a proposal abstract in advance of actual proposals. This procedure is intended to minimize unnecessary effort in proposal preparation and review. An original and **4** copies of the full proposal abstract, and **11** electronic copies (i.e., 11 separate disks) of the abstract (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format on one 3.5-inch floppy disk or one 100 MB Iomega Zip disk). Each disk must be clearly labeled with BAA 00-59, proposer organization, proposal abstract title (short title recommended) and Copy ___ of **11**). The full proposal abstract (original and designated number of hard and electronic copies) must be submitted to DARPA/ITO, ATTN: BAA 00-59, 3701 N. Fairfax Drive, Arlington, VA 22203-1714, in time to reach DARPA by 4:00 PM (ET) **Friday, October 20, 2000**, in order to be considered.

Revised!

An original and **4** copies of the full proposal, and **11** electronic copies (i.e., **11** separate disks) of the full proposal (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format on one 3.5-inch floppy disk or one 100 MB Iomega Zip disk). Each disk must be clearly labeled with BAA 00-59, proposer organization, proposal title (short title recommended) and Copy ___ of **11**). The full proposal (original and designated number of hard and electronic copies) must be submitted to the administrative address for this BAA in time to reach DARPA by 4:00 PM (ET) **Friday, December 8, 2000**, in order to be considered. DARPA will acknowledge receipt of submissions and assign control numbers that should be used in all further correspondence regarding proposals.

DARPA will attempt to review proposal abstracts within 30 days after receipt, and will make a recommendation encouraging or discouraging formal proposal submissions. Proposal abstracts will be reviewed as they are received. Early submissions are strongly encouraged. Regardless of the recommendation, the decision to propose is the responsibility of the proposer. All submitted proposals will be fully reviewed, regardless of the disposition of the proposal abstract.

Restrictive notices notwithstanding: Proposals may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate non-disclosure requirements.

EVALUATION AND FUNDING PROCESSES:

Proposals will not be evaluated against each other, since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described in PROPOSAL FORMAT Section I and Section II (see below). Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Evaluation of proposals will be accomplished through a scientific review of each proposal using the following criteria, which are listed in descending order of relative importance:

(1) Overall Scientific and Technical Merit: The overall scientific and technical merit must be clearly identifiable. The technical concept should be clearly defined and developed.   Emphasis should be placed on the technical value of the development and experimentation approach.

(2) Innovative Technical Solution to the Problem: Proposed efforts should apply new or existing technology in a new way such as is advantageous to the objectives. The plan on how offeror intends to get developed technology and information to the user community should be considered.

(3) Potential Contribution and Relevance to DARPA Mission: The offeror must clearly address how the proposed effort will meet the goals of the undertaking. The relevance is further indicated by the offeror's understanding of the operating environment of the capability to be developed.

(4) Offeror's Capabilities and Related Experience: The qualifications, capabilities, and demonstrated achievements of the proposed principals and other key personnel for the primary and subcontractor organizations must be clearly shown.

(5) Plans and Capability to Accomplish Technology Transition: The offeror should provide a clear explanation of how the technologies to be developed will be transitioned to capabilities for military forces. Technology transition should be a major consideration in the design of experiments, particularly considering the potential for involving potential transition organizations in the experimentation process.

(6) Cost Realism: The overall estimated cost to accomplish the effort should be clearly shown as well as the substantiation of the costs for the technical complexity described.   Evaluation will consider the value to Government of the research and the extent to which the proposed management plan will effectively allocate resources to achieve the capabilities proposed.

It is the Government's intention that proposals will be reviewed by Government and non-Government personnel; however, contractors will not be used to conduct evaluations or analyses of any aspect of a proposal submitted under this BAA unless one of the three conditions identified in FAR 37.203(d) applies.

As soon as the proposal evaluation is completed, the proposer will be notified of selectability or non-selectability. Selectable proposals will be considered for funding; non-selectable proposals will be destroyed. (Copies of non-selectable proposals may be retained for filing purposes.) Not all proposals deemed selectable will be funded. Decisions to fund selectable proposals will be based on funds available, scientific and technical merit, and potential contribution and relevance to DARPA's mission and offeror's capabilities and expertise. In addition, proposal funding decisions may be based on research efforts most relevant to program goals. DARPA may retain some selectable proposals for a period of up to one year, in order to reconsider those proposals for funding. Submitters of those retained proposals will receive notification to that effect.

The Government reserves the right to select for award all, some, or none of the proposals received. Proposals identified for funding may result in a contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. If warranted, portions of resulting awards may be segregated into pre-priced options.

GENERAL INFORMATION:

Revised!

Proposals not meeting the format described in this pamphlet may not be reviewed. Proposals and proposal abstracts **MUST NOT** be submitted by fax **or e-mail**; any so sent will be disregarded. The *Commerce Business Daily* notice, in conjunction with the BAA 00-59 Proposer Information Pamphlet (PIP) and all references, constitutes the total BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or other solicitation regarding this announcement be issued. Requests for same will be disregarded. All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

PROPOSAL ABSTRACT FORMAT:

Proposal abstracts are encouraged in advance of full proposals in order to provide potential offerors with a rapid response and to minimize unnecessary effort. The abstract submission should be clearly marked "PROPOSAL ABSTRACT" and should include a cover sheet and a technical section.

Revised!

The cover sheet should include: (1) BAA number; (2) Technical topic area; (3) Proposal title; (4) Technical point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (5) Administrative point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (6) Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant; and (7) Contractor's type of business, selected from among the following categories: "WOMEN-OWNED LARGE BUSINESS," "OTHER LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS [*Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other*]," "WOMEN-OWNED SMALL BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," "OTHER NONPROFIT", or "FOREIGN CONCERN/ENTITY."

The technical section of the abstract should include the following: A. {1 page} Innovative claims for the proposed research. This page is the centerpiece of the abstract and should succinctly describe the unique proposed contribution; and B. {4 pages} Technical rationale, technical approach and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable products. Include comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.

Revised!

The total length of the abstract should not exceed six pages including the cover sheet. Submissions must be formatted **in PDF, Postscript, or** ASCII, 72 characters to the line, 60 lines to the page. This is the only format that will be accepted. No formal transmittal letter is required.

PROPOSAL FORMAT:

Proposals shall include the following sections, each starting on a new page (where a "page" is 8-1/2 by 11 inches with type not smaller than 12 point) and with text on one side only. The submission of other supporting materials along with the proposal is strongly discouraged. Sections I and II of the proposal shall not exceed 40 pages. Maximum page lengths for each section are shown in braces {} below.

Section I. Administrative

{1} Cover Page including: (1) BAA number; (2) Technical topic area; (3) Proposal title; (4) Technical point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (5) Administrative point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (6) Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant; and (7) Contractor's type of business, selected from among the following categories: "WOMEN-OWNED LARGE BUSINESS," "OTHER LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS [*Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other*]," "WOMEN-OWNED SMALL BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," "OTHER NONPROFIT", or "FOREIGN CONCERN/ENTITY."

Section II. Detailed Proposal Information

This section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that make it desirable to DARPA.

A. {1} Innovative claims for the proposed research. This page is the centerpiece of the proposal and should succinctly describe the unique proposed contribution.

B.   {1} A "Proposal Roadmap" which shall address the following nine areas that must be addressed in the proposal. For each area, the roadmap will contain a summary statement (or "sound bite") for that area and identify the page number(s) where the issue is addressed in detail. It is important to make these statements as explicit and informative as possible.   The areas are:

1. Main goal of the work (stated in terms of new, operational capabilities for assuring that critical information is available to key users).

2. Tangible benefits to end users (i.e., benefits of the capabilities afforded if the proposed technology is successful).

3. Critical technical barriers (i.e., technical limitations that have, in the past, prevented achieving the proposed results).

4. Main elements of the proposed approach.

5. Specific basis for confidence that the proposed approach will overcome the technical barriers. ("We have a good team and good technology" is not a useful statement.)

6. Nature of expected results (unique/novel/critical capabilities to result from this effort, and form in which they will be defined).

7. The risk if the work is not done.

8. Criteria for evaluating progress and capabilities.

9. Cost of the proposed effort for each contract year.

C. {17} Technical rationale, technical approach and constructive plan for accomplishment of technical goals in support of innovative claims and deliverables.

D. {2} Deliverables associated with the proposed research. Include in this section all proprietary claims to results, prototypes, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are no proprietary claims, this should be stated. The offeror must submit a separate list of all technical data or computer software that will be furnished to the Government with other than unlimited rights (see DFARS 227.)

E. {3} Statement of Work (SOW) written in plain English, outlining the scope of the effort and citing specific tasks to be performed and specific contractor requirements.

F. {1} A graphic illustration of the milestones and schedule, including but not limited to, a multi-phase development plan which demonstrates a clear understanding of the proposed research; and a plan for periodic and increasingly robust experiments over the project life that will show applicability to the overall program concept.

G. {2} Technology Transfer. Description of the transferable technology and expected technology transfer path.

H. {3} Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.

I. {2} List of key personnel, concise summary of their qualifications, and discussion of proposer's previous accomplishments and work in this or closely related research areas. Indicate the level of effort to be expended by each person during each contract year and
other (current and proposed) major sources of support for them and/or commitments of
their efforts. DARPA expects all key personnel associated with a proposal to make substantial time commitment to the proposed activity.

J. {1} Description of the facilities that would be used for the proposed effort. If any portion of the research is predicated upon the use of Government Owned Resources of any type, the offeror shall specifically identify the property or other resource required, the date the property or resource is required, the duration of the requirement, the source from which the resource is required, if known, and the impact on the research if the resource cannot be provided. If no Government Furnished Property is required for conduct of the proposed research, the proposal shall so state.

K. {1} Experimentation and Integration Plans. Offerors shall describe how their results could be integrated with solutions that other contractors are currently developing or are likely to develop. In addition, offerors should identify experiments to test the hypotheses of their approaches and be willing to work with other contractors in order to develop joint experiments in a common testbed environment. Offerors should expect to participate in teams and workshops to provide specific technical background information to DARPA, attend semi-annual Principal Investigator (PI) meetings, and participate in numerous other coordination meetings via teleconference or Video Teleconference (VTC). Funding to support these various group experimentation efforts should be included in technology project bids.

L. {5} Cost by task, with breakdown into accounting categories and equipment for the entire contract and for each contract year. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as contract options with separate cost estimates for each. Details of any cost sharing should also be included.

MANDATORY !

M. Contractors requiring the purchase of Government Furnished Equipment (GFE) **MUST** attach to the submitted proposals the following information:

1. A letter on Corporate letterhead signed by a senior corporate official and addressed to **Mr. Robert Graybill,** DARPA/ITO, stating that you either can not or will not provide the information technology (IT) resources necessary to conduct the said research.

2. An explanation of the method of competitive acquisition or a sole source justification, as appropriate, for each IT resource item.

3. If the resource is leased, a lease purchase analysis clearly showing the reason for the lease decision.

4. The cost for each IT resource item.

IMPORTANT NOTE: IF THE CONTRACTOR DOES NOT COMPLY WITH THE ABOVE STATED REQUIREMENTS, THE PROPOSAL WILL BE REJECTED.

Awards made under this BAA may be subject to the provisions of the Federal Acquisition Regulation (FAR) Subpart 9.5, Organizational Conflict of Interest. All affirmations must state which office(s) the offeror supports, and identify the prime contract number. Affirmations should be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest, as that term is defined in FAR 9.501, must be disclosed in Section II., H of the proposal, organized by task and year. This disclosure shall include a description of the action the Contractor has taken, or proposes to take, to avoid, neutralize, or mitigate such conflict.

The Government intends to use employees from two non-Government sources -- Science and Technology Associates, Inc. (STA) and DynCorp -- to assist as technical experts, and in administering the evaluation of the proposals (DynCorp only). Employees of these organizations engaged for these purposes are restricted by their contracts from disclosing the proposal information, and from using proposal information for other than performing administrative and/or advisory tasks for the government. Personnel are required to sign Organizational Conflict of Interest and Nondisclosure Agreements. By submission of your proposal, you agree that your proposal information may be disclosed to those employees of the organizations identified above for the limited purpose stated above. Any information submitted with your proposal that you do not consent to limited release to these sources must be clearly marked and submitted segregated from other proposal material. Selections under this BAA will be made only by Government evaluators.

Section III. Additional Information

A bibliography of relevant technical papers and research notes (published and unpublished) that document the technical ideas, upon which the proposal is based, may be included in the proposal submission. Provide one set for the original full proposal and one set for each of the **4** full proposal hard copies. Please note: The materials described in this section, and submitted with the proposal, will be considered for the reviewer's convenience only and not considered as part of the proposal for evaluation purposes.

The administrative addresses for this BAA are:

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